What Is High Blood Cholesterol? http://dci.nhlbi.nih.gov/Diseases/Hbc/HBC_WhatIs.html
(From the National Heart Lung Blood Institute, NHLBI, Dec 2003)

Too much cholesterol (ko-LES-ter-ol) in the blood, or high blood cholesterol, can be serious. People with high blood cholesterol have a greater chance of getting heart disease. High blood cholesterol itself does not cause symptoms, so many people are unaware that their cholesterol level is too high.

What Is Cholesterol?

To understand high blood cholesterol, it is important to know more about cholesterol.

- Cholesterol is a waxy, fat-like substance that is found in all cells of the body. Your body needs some cholesterol to work the right way and makes all the cholesterol you need.
- Cholesterol is also found in some of the foods you eat.
- You use cholesterol to make hormones, Vitamin D, and substances that help you digest foods.

Blood is watery and cholesterol is fatty. Just like oil and water, the two do not mix. So, in order to travel in the bloodstream, cholesterol is carried in small packages called lipoproteins (lip-o-PRO-teens). The small packages are made of fat (lipid) on the inside and proteins on the outside. Two kinds of lipoproteins carry cholesterol throughout your body. It is important to have healthy levels of both:

- **LDL (low density lipoprotein)** cholesterol is sometimes called "bad" cholesterol.
  - High LDL cholesterol leads to a buildup of cholesterol in arteries. The higher the LDL level in your blood, the greater chance you have for getting heart disease.
- **HDL (high density lipoprotein)** cholesterol is sometimes called "good" cholesterol.
  - HDL carries cholesterol from other parts of your body back to your liver. The liver removes the cholesterol from your body. The higher your HDL cholesterol level, the lower your chance of getting heart disease.

What Is High Blood Cholesterol?

Too much cholesterol in your blood can build up in the walls of your arteries (blood vessels that carry blood from the heart to other parts of the body). This buildup of cholesterol is called plaque (PLACK). Over time, plaque can cause narrowing of the arteries. This is called atherosclerosis (ath-er-o-skler-O-sis) or "hardening of the arteries."

Special arteries, called coronary arteries, bring blood to the heart. Narrowing of your coronary arteries due to plaque can stop or slow down the flow of blood to your heart. When the arteries narrow, the amount of oxygen-carrying blood is decreased. This is called coronary artery disease (CAD). Large plaque areas can lead to chest pain called angina. Angina happens when the heart does not receive enough blood and the oxygen it carries. Angina is a common sign of CAD.

Some plaques have a thin covering and burst (rupture), releasing fat and cholesterol into the bloodstream. The release of fat and cholesterol may cause your blood to clot. A clot can block the flow of blood. This blockage can cause angina or a heart attack.

Lowering your cholesterol level decreases your chance for having a plaque burst and cause a heart attack. Lowering cholesterol may also slow down, reduce, or even stop plaque from building up.

Plaque and resulting health problems can also occur in arteries elsewhere in the body.

Other Names for High Blood Cholesterol

- Hypercholesterolemia
- Hyperlipidemia.

What Causes High Blood Cholesterol?

A variety of things can affect the cholesterol levels in your blood. Some of these things you can control and others you cannot.

You *can* control:

- **What you eat.** Certain foods have types of fat that raise your cholesterol level.
    - **Saturated fat** raises your LDL cholesterol level more than anything else in your diet.
    - **Trans fatty acids (trans fats)** are made when vegetable oil is "hydrogenated" to harden it. Trans fatty acids also raise cholesterol levels.
    - **Cholesterol** is found in foods that come from animal sources, for example, egg yolks, meat, and cheese.

- **Your weight.** Being overweight tends to increase your LDL level, lower your HDL level, and increase your total cholesterol level.

- **Your activity.** Lack of regular exercise can lead to weight gain and raise your LDL cholesterol level. Regular exercise can help you lose weight and lower your LDL level. It can also help you raise your HDL level.

You *cannot* control:

- **Heredity.** High blood cholesterol can run in families. An inherited genetic condition ([familial hypercholesterolemia](#)) results in very high LDL cholesterol levels. It begins at birth, and results in a heart attack at an early age.

- **Age and sex.** Starting at puberty, men have lower levels of HDL than women. As women and men get older, their LDL cholesterol levels rise. Younger women have lower LDL cholesterol levels than men, but after age 55 they have higher levels than men.

What Are the Signs and Symptoms of High Blood Cholesterol?

There are usually no signs or symptoms of high blood cholesterol. Many people don't know that their cholesterol level is too high.

Everyone age 20 and older should have their cholesterol levels checked at least once every 5 years. You and your doctor can discuss how often you should be tested.

How is High Blood Cholesterol Diagnosed?

High blood cholesterol is diagnosed by checking levels of cholesterol in your blood. It is best to have a blood test called a lipoprotein profile to measure your cholesterol levels. Most people will need to "fast" (not eat or drink anything) for 9 to 12 hours before taking the test.

The lipoprotein profile will give information about your:

- **Total cholesterol**
- **LDL (bad) cholesterol:** the main source of cholesterol buildup and blockage in the arteries
- **HDL (good) cholesterol:** the good cholesterol that helps keep cholesterol from building up in arteries
- **Triglycerides:** another form of fat in your blood.

If it is not possible to get a lipoprotein profile done, knowing your total cholesterol and HDL cholesterol can give you a general idea about your cholesterol levels. Testing for

total and HDL cholesterol does not require fasting. If your total cholesterol is 200 mg/dL or more, or if your HDL is less than 40 mg/dL, you will need to have a lipoprotein profile done.

Cholesterol levels are measured in milligrams (mg) of cholesterol per deciliter (dL) of blood. See how your cholesterol numbers compare to the tables below.

Total Cholesterol Level	Total Cholesterol Category
Less than 200 mg/dL	Desirable
200-239 mg/dL	Borderline high
240 mg/dL and above	High

LDL Cholesterol Level	LDL Cholesterol Category
Less than 100 mg/dL	Optimal
100-129 mg/dL	Near optimal/above optimal
130-159 mg/dL	Borderline high
160-189 mg/dL	High
190 mg/dL and above	Very high

HDL Cholesterol Level	HDL Cholesterol Category
Less than 40 mg/dL	A major risk factor for heart disease.
40 - 59 mg/dL	The higher, the better.
60 mg/dL and above	Considered protective against heart disease.

Triglycerides can also raise your risk for heart disease. Levels that are borderline high (150-199 mg/dL) or high (200 mg/dL or more) may need treatment. Things that can increase triglycerides include:

- Overweight
- Physical inactivity
- Cigarette smoking
- Excessive alcohol use
- Very high carbohydrate diet
- Certain diseases and drugs
- Genetic Disorders